WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

MANUAL STAGE HEIGHT STATION

STATION ID: 01S070

STATION NAME: Squalicum Cr. at West Street

WATER YEAR: 2007

AUTHOR: Chuck Springer

Introduction

Watershed Description

The Squalicum Creek watershed is one of the largest independent drainages in Whatcom County. It includes most of northern Bellingham, beginning at Squalicum and Toad lakes and flows west to Bellingham Bay. Squalicum Creek is 9.7 miles long, and the watershed drains 22 square miles of land. The main land uses in the Squalicum Creek watershed are residential, forestry, commercial, agricultural, light industrial, and some mining. Squalicum Creek supports populations of coho, Chinook, and chum salmon, as well as steelhead and cutthroat trout.

Gage Location

This gage is co-located with a City of Bellingham continuous stream gage upstream of the corner of West Street and Squalicum Parkway, at river mile 0.7.

Table 1.

Drainage Area (square miles)	22.9
Latitude (degrees, minutes, seconds)	48° 45’ 58” N
Longitude (degrees, minutes, seconds)	122° 29’ 56” W
Primary Gage Index Type	Staff Gage
Secondary Gage Index Type	Tape Down

Error Analysis

Overall Rating Error Percentage	19.9

Rating Table(s)

Table 2. Rating Table Summary

Rating Table No.	5	6	N/A
Period of Ratings	10/1/06 – 5/1/07	11/1/06 – 9/30/07	
Range of Ratings (cfs)	0.4 – 265	0 – 265	
No. of Defining Measurements	8	15	
Rating Error (%)	26.2%	15.9%	

Rating Table No.	N/A	N/A	N/A
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Rating Table No.	N/A	N/A	N/A
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Narrative

One rating shift occurred during water year 2007. The section control for this gage scoured during spring storm events. The resulting rating curve covers a much larger range due to the addition of a point of zero flow (PZF) estimation.

Discrete Flow Record

Table 3. Discrete Flow Record Summary

Number of Discrete Stage Readings	35	
Maximum Observed Stage (feet) and Date	2.92	1/4/07
Maximum Predicted Discharge (cfs) and Date	203	1/4/07
Minimum Observed Stage (feet) and Date	0.77	8/15/07
Minimum Predicted Discharge (cfs) and Date	0.5	8/30/07
Range of Stage (feet) and Discharge (cfs)	2.15	202.5

Narrative

Four of the discrete stage observations taken during water year 2007 are considered estimates due to large discrepancies between the staff gage and tape down readings on those dates.

Modeled Discharge

Table 4. Model Summary

Model Type (Slope conveyance, other, none)	None
Range of Modeled Stage (feet)	
Range of Modeled Discharge (cfs)	
Valid Period for Model	
Model Confidence	

Surveys

Table 5. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Stn, X-sec, Longitudinal	10/25/06

Activities Completed

Nothing of note.